

III. REMARKS

Claims 1, 3, 4-7 and 9-18 are pending in this application. By this Amendment, claim 3 has been amended. Claims 1 and 9 were previously amended. Claims 2 and 8 were previously cancelled. Claim 18 was previously added. Claims 10-17 were previously withdrawn from consideration.

The amendment of claim 3 corrects the dependency to the independent claim. Entry of this Amendment is proper under 37 C.F.R. §1.116(b) because the Amendment: (a) places the application in condition for allowance as discussed below; (b) does not raise any new issues requiring further search and/or consideration; and (c) places the application in better form for appeal. Accordingly, Applicants respectfully request entry of this Amendment.

Objection in Final Office Action

In the Final Office Action, the Office objects to Claim 8 due to an informality. Applicants note the objection. Claim 8 was previously cancelled. Accordingly, Applicants request withdrawal of the objection.

Summary of Rejections in Final Office Action

In the Final Office Action, Claims 1, 3-7, 9 and 18 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over the combination of Lee, Ramsay et al., Bertrand et al., Chung et al. and Jang et al. Reconsideration of the rejections in the Final Office Action is respectfully requested.

Applicants do not acquiesce in the correctness of the rejections and

reserve the right to present specific arguments regarding any rejected claims not specifically addressed. Further, Applicants reserve the right to pursue the full scope of the subject matter of the original claims in a subsequent patent application that claims priority to the instant application. Reconsideration in view of the following remarks is respectfully requested.

Specifically the Office asserts that each of Lee, Ramsay et al., and Bertrand et al. teach the production of the polyhydroxyalkanoate PHB with a microorganism using xylose as the main carbon source.

The Office concedes that each of Lee, Ramsay et al., Bertrand et. al do not teach the use of levulinic acid (LA) as a cosubstrate for the production of P(3HB-co-3HV).

The Office asserts that each of Chung et al. and Jang et al. teach the production of the polyhydroxyalkanoate P(3HB-co-3HV) with a microorganism using glucose as a primary carbon source and levulinic acid as a secondary carbon source.

The Office concedes that Chung et al. teaches the addition of additional amounts of LA to the culture to maintain the level of LA in the culture at a constant amount.

Upon these references, the Office concludes it would have been obvious to the skilled artisan to produce the polyhydroxyalkanoate P(3HB-co-3HV) with a microorganism using xylose as a primary carbon source and LA as a secondary carbon source with a second addition of LA to the culture between 16 to 24 hours after the first quantity of LA was added where the second addition of LA is

greater than the first quantity of LA.

The Addition of a First Quantity of Levulinic Acid as Secondary Carbon Source and an Additional Second Quantity of LA at 16 to 24 Hours After the First Quantity was Added in an Amount Greater than the First Quantity is Non-Obvious.

Bertrand et. al teaches the addition of propionic acid (PA) as a secondary carbon source. Bertrand et al. does not teach a two-stage addition of the secondary carbon source with the second addition being in a quantity greater than the first.

Lee and Ramsay et al. do not teach the addition of a secondary carbon source and do not teach the addition of a secondary carbon source in a two-stage addition with the second addition being greater than the first.

Jang et al. teaches the addition of LA as a secondary carbon source but does not teach the subsequent addition of LA to the culture after the first addition of LA.

Chung et al. teaches the use of LA as a secondary carbon source and teaches the use of additional amounts of LA to maintain the level of LA in the culture at a constant amount. In other words, Chung et al. teaches maintaining the level of the secondary carbon source – not increasing the level.

Applicants note that each of Lee, Ramsay et al., Bertrand et al., Chung et al. and Jang et al. do not teach the addition of a first and second quantity of a secondary carbon source with the second quantity being greater than the first quantity.

Adding a second quantity of LA 16 to 24 hours subsequent to a first quantity added is not taught or suggested by the cited references in any

combination. Rather, the Office alleges that it would be obvious to one skilled in the art to do so, based on the cited references since the addition of a growth stimulatory amount of LA before PHA production begins would benefit the early growth phase while a second, larger amount of LA added during nitrogen depletion would promote production of the P(3HB-co-3HV) polymer.

Applicants respectively assert that the Office has engaged in impermissible hindsight, using Applicants' own teachings in making its rejection. It would not have been obvious at the time of the invention, to have modified and combined these five references as suggested by the Office. It is the Applicants' position that, absent their own teachings, the Office's rejection is legally and logically untenable.

Therefore, for each of the reasons above, Applicants respectfully assert that none of the rejected Claims are obvious in view of any combination of Lee, Ramsay et al., Bertrand et al., Chung et al. and Jang et al.

With regard to the Office's other arguments regarding dependent claims 3-7, 9 and 18, Applicants herein incorporate the arguments presented above with respect to independent claim 1 listed above. In addition, Applicants submit that all dependant claims are allowable based on their own distinct features. However, for brevity, Applicants will forego addressing each of these rejections individually, but reserve the right to do so should it become necessary. Accordingly, Applicants respectfully request that the Office withdraw its rejection.

IV. CONCLUSION

In addition to the above arguments, Applicants submit that each of the pending claims is patentable for one or more additional unique features. To this extent, Applicants do not acquiesce to the Office's interpretation of the claimed subject matter or the references used in rejecting the claimed subject matter. Additionally, Applicants do not acquiesce to the Office's combinations and modifications of the various references or the motives cited for such combinations and modifications. These features and the appropriateness of the Office's combinations and modifications have not been separately addressed herein for brevity. However, Applicants reserve the right to present such arguments in a later response should one be necessary.

In light of the above, Applicants respectfully submit that all claims are in condition for allowance. Should the Examiner require anything further to place the application in better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the number listed below.

Respectfully submitted,

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